

A NOTE ON THE *CORVIDÆ* OF THE PUNJAB

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The following note on the members of the family *Corvidæ* which are found in the Punjab has been written with two objects, firstly to shew in a concise form what species are known to occur, with their status and distribution, and secondly to indicate the gaps in our knowledge and the direction in which further investigations are necessary. The great advances of the last twenty years in the study of racial forms or subspecies has rendered necessary the overhauling of our knowledge of even the most common and well known birds. There is, for example, no more familiar bird in the whole of India than the Common House Crow, yet, as I have shewn below, it is not possible at present to mark the line of demarcation between two of its races which occur within the Punjab. A sufficient series of skins from different Punjab localities is still required to enable their respective distributions to be worked out.

The Punjab, for the purposes of this note, has been taken as the area which falls within the political and administrative boundaries of the Punjab Government. From a scientific point of view these boundaries are unsatisfactory as they include certain Himalayan areas which are faunistically quite different to the Punjab plain proper. But after due consideration of the respective claims of scientific accuracy and practical convenience, which need not be enumerated here at length, I have considered it better for the purposes of this note to follow official boundaries.

The Tibetan Raven.—*Corvus corax tibetanus* (Hodgs.).

The Tibetan Raven is a familiar species throughout the high wastes of Turkestan and northern Cashmere usually at an altitude of 12,000 ft. and upwards.

Within our area it is only found in the extreme north-easterly corner in the provinces of Lahul and Spiti. In the former I met with a few pairs in May and June at altitudes of 10,000 feet and upwards, and the Thakur of Lahul informed me that it was considered rare at that season, but that more arrived in autumn following the flocks which then come down over the Baralacha Pass.

Stoliczka obtained several specimens in Spiti, apparently in summer, previous to the year 1868. In July 1922 I met with a few in Spiti, at 13,000 feet or over. He records also a hearsay report that it is common in winter about Chini but that only a very few come down at that season to Kulu and Kotghar, and it is evident that the Tibetan Raven, while being strictly speaking a resident species in the areas that it inhabits, obeys the usual law that resident Himalayan birds move up and down to higher and lower altitudes according to the severity of the season and snow-fall.

The finding of the nest within the Punjab boundaries has not yet been recorded. Fully fledged young, still with the parents, were seen on the shores of the Tso Morari Lake in early May by Ludlow (Jour., B. N. H. S., xxvii., 141) and Mandelli's men obtained the eggs in Sikkim in March. Nests with eggs were obtained at Gyantse on 15th February and 12th March by Bailey (Jour., B. N. H. S., xxi., 183).

The Punjab Raven.—*Corvus corax laurencei* (Hume).

This Raven is found throughout the Punjab territories with the exception of the hill area north of a line drawn from Pathankot to Kalka

and Nahan. The only records north of this line are a single bird seen at Bukloh 4,000 feet and a pair at Dalhousie 7,000 ft. in June and July by Mr. A. E. Jones, and a pair seen by myself about Nurpur 2,000 ft. on 7th April 1921.

In the eastern and extreme south-eastern districts, where the general conditions approximate more to those of the United Provinces the Raven is distinctly scarce.

West of the line Hissar—Ludhiana—Batala it becomes exceedingly common and is found in considerable numbers throughout the remainder of the province. It is found alike in the sandy semi-desert plains from Sirsa to Jhang and Bhawalpur, in the canal areas of the Central Punjab, and in the bare rocky ravines of the Salt Range and the Rawalpindi—Attock plateau. Here it breeds right up to the base of the Murree hills as I have found the nest at Kahuta.

It may be met with throughout the year and is in the main certainly a resident species ;

But it is worthy of note that in northern Sindh (Hume, S. F., i., 205), Kohat (Whitehead, Ibis, 1909, 100), Sambhar Lake (Adam, S. F., i., 385) and Amballa (Beavan, Ibis, 1868, 165) former observers have declared that the Raven, while in part a resident, is in the main a winter visitor, and at Jhang in 1918 and 1919 I noticed that about September it suddenly became unusually numerous possibly due to the presence of migrating birds. So it is in the highest degree likely that a certain proportion of the Punjab birds are migratory, though the fact escapes notice owing to the large resident population and the dearth of observers. The habit of this bird of gathering in considerable numbers at all times in the outskirts of cities and cantonments, and in the hot weather of gathering to roost in large colonies also tends to obscure any migrational movements.

The breeding season in the Punjab lasts from early in December until late in March, and the great majority of eggs are to be found in January and February.

The Carrion Crow—*Corvus corone* (L.)

Although from the fact that the Carrion Crow is known to breed both in Kashmir and in the Upper Kurram Valley and to be a fairly common winter visitor to Bannu, it may be expected to occur within the Punjab Province, the fact has not yet been satisfactorily established.

Major Magrath recorded (Jour., B. N. H. S., XIX., p. 144) that some appeared about the ridge in Murree in July (1908) when the rains had broken. There were both adults and young and they were to be distinguished from the Jungle Crows by their caw.

I recorded (Ibis, 1916, 40) two supposed examples seen with other crows gathering to roost in the Forest Rakh at Jhelum on January 13th and 20th, 1914.

As in neither case specimens were obtained these records can hardly be regarded as satisfactory.

It has been stated that the Cashmere and N. W. F. P. Carrion Crow belongs to the race *Corvus corone orientalis* of Eversman. No proper series from this area is however available anywhere for critical examination, and it appears *prima facie* more probable that these birds belong to the western race. Under these circumstances, I have used only the Binomial name, and would urge any Indian Ornithologist who has the opportunity, to collect a full series of Carrion Crows.

The Rook.—*Corvus frugilegus tschusii* (Hartert).

There is considerable doubt whether this Asiatic race of the Rook is worth sub-specific separation, but as it has been recognised by the

authors of the 'Hand Book of British Birds,' it may be allowed to stand here. The breeding quarters of the sub-species are North Persia, Turkestan, and South-Western Siberia, and in winter it moves south to Afghanistan, Baluchistan, Kashmir and the extreme north-western corner of India. Here it extends in two directions, along the country west of the Indus down as far as Quetta, and across the submontane area of the North-West Punjab. But as appears natural in a species of which vast hordes remain during the winter in areas north of the Himalayan Chain, the birds which arrive in the area south of that Chain appear to vary greatly from year to year both in numbers and in the time of their arrival and departure: this variation must be dependant on climate and food conditions in the main winter range.

In the Punjab area the Rook is found in the submontane tract which includes the districts of Campbellpore, Rawalpindi, Jhelum north of the Salt Range, and Sialkot. Here it arrives annually in greater or less numbers. Further south it is only a straggler. In the last week of December 1913 I observed a large number about the Civil Station of Gujranwala, and Currie has recorded large flocks at Atari in January. Mrs. Wathen has informed me that this winter (1921-22) she saw Rooks at Amritsar from November 16th till March 6.

Mr. F. W. Chanter recorded (S.F., X., 518) that he saw a flock of about 300 Rooks at Ludhiana on the 31st October 1884 and in an editorial foot note to this communication Hume stated that he had seen specimens from Hoshiarpur. I have not however met any in the Kangra Valley.

In Gilgit, Scully and Biddulph found that the Rook arrived about the third week in October and left again in April; and the former noted that it left Eastern Turkestan at the beginning of April. In the winter of 1913-14 at Jhelum I found that the vanguard arrived about the third week of October and the numbers continued to increase until about December, starting to decrease again about the second week in February; the majority were gone by the end of that month, although a few birds remained until the end of March. In some years however the Rook does not reach the Punjab until November but there is very little on record about the species.

West of the Punjab this bird reaches a more southerly point at Quetta. Here it is said to arrive usually about the middle of November and to leave again in March (Meinertzhagen, Ibis, 1920, 135), and to be very scarce in some years. At Kohat according to Whitehead (Ibis, 1909, 103) it arrives in November and remains as late as the middle of April. He remarks that the birds staying on through March are nearly all first winter birds, the adults apparently leaving about the beginning of March.

The Eastern Hooded-Crow.—*Corvus cornix sharpii* (Oates).

The Hooded Crow is a regular winter visitor to the North-West Frontier Province from Hazara to Bannu; it is very abundant in the Peshawar and Bannu Districts but is scarce in Kohat District which is less suited to its habits. Further north in Kashmir it appears to be decidedly rare.

I can find no record of its occurrence actually in the Punjab beyond Hume's statement (Stray Feathers, VII, 144) that it occasionally occurs as a straggler Cis-Indus. This doubtless refers to the Attock-Campbellpore District.

The Common House-Crow.—*Corvus splendens splendens* (Vieill.).

The typical race of the Common House Crow extends up from the Indian peninsular into the Punjab but it is not yet fully established where

lies the boundry between it and *C. s. zugmayeri*; there is in any case probably an intermediate area where the House Crows cannot be definitely assigned to either race. For the present it must suffice to say that the House Crow, by whichever race represented, is a very abundant resident species throughout the Punjab up to the base of the Himalayas; it does not occur in the Kangra District but is common, in summer at any rate, in the southern half of the Kulu Valley from near Sultanpur to below Bajaura at an elevation of 3,000 ft. According to Stoliczka (Jour., A. S. B., xxxvii) a few occur along the villages of the Sutlej valley up to Koteghar.

It is common about Solon at 4,000 ft. and in March I saw a number in Kasauli Bazar about 5,500 ft. Jones records a single specimen seen at Annandale, Simla. No House Crow occurs in the Salt Range station of Sakesar.

In both races the breeding season starts with remarkable regularity, eggs being found from the middle of June until the end of July.

The Baluchistan House-Crow.—*Corvus splendens zugmayeri* (Laubman.)

It has long been known that the House Crows of the *Corvus splendens* group which occur so widely and abundantly throughout the Indian Empire are very variable in size and colour and that those of the extreme north-west of the Peninsula are remarkable for the purity and whiteness of the tone of the grey parts of the plumage. It was not however until 1913 that Laubman (Orn. Monatsber, 1913, 93) separated this race under the name of *C. s. zugmayeri* with the type locality of Baluchistan. It has not yet been possible, owing to a lack of specimens for examination from the intermediate areas, to fix accurately the boundaries between this race and the typical form. Hartert however (Vog. Pal. Fauna, p. 2023) lays down its range as South Baluchistan (Mekran, Somniani, Las Belas), Sindh, Mekran coasts, the south-east corner of Persia, and probably also the Punjab and Southern Kashmir.

That it occurs in the Punjab is now established beyond doubt. A series of 11 specimens collected by me at Jhang and 3 more from Jhelum are indistinguishable from Sindh birds and the birds of the Rawalpindi District are similarly remarkable for their white colouration. It may therefore be safely assumed that the range of this race extends up the whole of the Western Punjab and North-West Frontier Province from the Sindh border right up to the base of the Himalayas. How much further the race extends towards the Central Punjab is however not yet known owing to a lack of specimens for comparison. An isolated colony occurs in the Kashmir Valley at 5,000 feet, but in the Murree Hills it apparently does not go above Tret in Summer.

This race exhibits the tendency to albinism which is found in other Crows. Three albinistic specimens were obtained by me at Jhang (2,192 ♀, 5. v. 18; 2,655 ♀, 5. xii. 18; 2,674 ♀, 11. vi. 19) in addition to the normal series mentioned above and I also saw other examples.

The breeding season is remarkably regular, eggs being laid in the second half of June and in July.

The Jungle Crow—*Corvus coronoides intermedius* (Adams).

The Jungle Crow is found in abundance throughout the hill area of the North-Eastern Punjab, that is to say in Chamba, Kulu, Lahul, Saraj, Kangra and the Simla Hill States; where the Outer Himalayas again come into the Punjab boundary about Murree it is also abundant. In summer it occurs at least as high as 15,000 ft. but probably the majority do not breed much above 9,000 ft. while many breed along the edge of the

plains as at Gurdaspur, Malikpur and Nurpur. In Lahul it appears to be only a summer straggler following the pack animals on the Himalayan Tibet trade road. While in the main a resident species this bird changes its altitude according to season to a noticeable extent.

As regards the plains, my information is very incomplete; a certain number drift down, during the winter months from November to February, to the submontane area from Kalka to Ambala.

Jones has noted (Jour. B.N.H.S., xxvii., 794) that it is common in winter about Attock and in the Kala Chitta Hills and that a few occur about Campbellpore. I failed to find it in the Rawalpindi plain and the Jhelum district, and throughout the whole of the main Punjab it certainly does not occur.

Across the Indus in the N.-W. F. Province at Kohat and Bannu it is an abundant winter visitor from the end of October and beginning of November until the middle of April or well into May.

Some form of Jungle Crow appears along the eastern border of the Province but information on this point is very incomplete. Currie implies (Jour. B. N. H. S., xxiv., 602) that it occurs at Karnal. Bingham long ago recorded (N. & E. 2nd Ed., I, 6) that he had only seen a single pair at Delhi.

It is not improbable that about this area *C. c. intermedius* is replaced by the Peninsula Indian Form *C. c. leucallantii* Less., a slightly larger bird with a stronger bill more bowed on the culmen.

Information as to its breeding in our area is also meagre. The breeding season at Simla is said to be from the end of March till the first week of May; Currie records a nest under construction at Gurdaspur in March and I found feathered young in a nest at Nurpur on 15th April. I took c/4 hard set eggs near Dhelu (4,500 ft. Mandi State) on 14th May. In Kulu it appears to breed later as I found naked young in a nest at Raisan (4,000 ft.) on 21st May and saw a pair collecting hair from a donkey's back on 18th June. Several nests were found at Dharmsala in April.

The Jackdaw—*Colæus monedula collaris* (Drummond).

The account of the distribution of the Jackdaw in the 1st edition of the Fauna of B. I. Birds, Vol. I., p. 23, is singularly misleading. It is there given as follows:—"Kashmir and the N.-W. Punjab. According to Hume the Jackdaw is in winter numerous near the foot of the hills and has been found as far east as Umballa, and south to Ferozepore, Jhelum and Kalabagh, and it extends into the Dera Ghazi Khan District. It appears to be resident in Kashmir and as far east as the Valley of the Beas throughout which tract it breeds freely."

To take the breeding range first, so far as we are concerned with it. The Jackdaw appears to breed within a very limited area in Kashmir; it is most abundant and familiar in the vale of Kashmir proper, that is to say the wonderful plain, 5,000 feet in elevation above the sea, about Baramulla, Srinagar and Islamabad. It extends a small distance up the Valleys around the Vale but does not cross the mountain barrier between Baramulla and Murree on the one side, or into the Indus Valley on the other side. Even as close as Dras, Ludlow chronicles the occurrence of a pair by the Rest House on 15th April 1919 as remarkable (Jour. B.N.H.S., xxvii., 141). In the whole area north of the line formed by the Indus and Gilgit Rivers right away to Kashgar the Jackdaw is a winter visitor or passage migrant only.

As regards Kishtwar, Zaskar, Rupshu, and Chamba, my information is only negative: I have found no evidence that it breeds at all in this area, beyond the assumption by Hume that it must do so as it breeds both in

Kashmir and the Beas Valley. By the Beas Valley Hume clearly means Kulu. It should be noted however that Hume's own words are (N. & E., 2nd ed., I, 13.) "I only know positively of Jackdaws breeding in one district within our limits, *viz.*, Cashmere; but I have seen it in the hills in summer as far east as the Valley of the Beas and it must breed everywhere in suitable localities between the two." He does not state whether he saw a single bird or many. I have three times been along the Beas Valley in Kulu in summer and have also traversed the whole of the trade route in Lahul, from the Rohtang Pass to the foot of the Baralacha, without seeing a single Jackdaw. There is also the negative evidence that the Jackdaw, which is so common about Rawalpindi and Jhelum south of its Cashmere breeding ground, does not appear at all in the Kangra Valley where supposed Kulu breeding birds should debouch in winter. In my opinion therefore there is as yet no evidence that the Jackdaw ever breeds within Punjab territory. As a winter visitor it is common; but in this respect its range is more limited than the wording of the Fauna description would lead one to suppose, and more in accordance with what one would expect from a topical study of its breeding areas.

Its main stronghold is undoubtedly the Rawalpindi and Jhelum districts where it is common and usually found in company with the vast flights of Rooks which spend the winter about the neighbourhood of the Cantonments of Rawalpindi and Jhelum. At Jhelum in the winter of 1913-1914 I found that the Jackdaws first arrived about the middle of October, becoming common by the end of the month, and that they remained until the end of February; a few birds only staying over into March. There is probably however, as in the case of the Rook, a good deal of variation in the numbers of the Jackdaws and in their dates of movement.

North of Rawalpindi about Campbellpore, Jones (Jour. B.N.H.S., xxvii., 795) says that he occasionally saw it flying over at considerable heights, often in company with Rooks.

There is no published record for Gujrat and Sialkot, but I saw small numbers about Gujranwala in the last week of December 1913. Currie (Jour. B.N.H.S., xxiv., p 561) records large flocks with Rooks at Atari near Lahore in January.

I cannot find Hume's authority for his statement that the Jackdaw has been found at Amballa and Ferozepore; he doubtless verified his information but it is within my knowledge that many Europeans mistake *Corvus splendens* for a Jackdaw; in any case such occurrences would be very unusual.

His south-western localities of Kala Bagh and Dera Ghazi Khan fall into a different category. It is fully established by Whitehead and Magrath (Ibis, 1909-104: Jour. B.N.H.S., xix., 256) that the Jackdaw is a winter visitor to the Kohat and Bannu Districts, and Hume states (Ibis, 1871, 403) that it is common at Murdan in winter, and various observers have established its arrival in winter about Quetta, though there apparently in very small and irregular numbers. It is, therefore, in no way surprising that the last outskirts of this west to easterly migration from the Persian and Afghan breeding ground, as opposed to the north to south migration from the Kashmir Valley to the Rawalpindi Jhelum area, should reach Kalabagh and Dera Ghazi Khan. Here the Indus seems to form a very clearly marked boundary and there is no record from the east of it.

One interesting point remains to be noted. Several observers have apparently established the fact that early in the winter the Jackdaw is usually found mixed up with Rooks; whereas after Christmas the tendency is for Jackdaws to form into separate flocks, often of considerable size.

This is doubtless due to the first stirrings of the migratory impulse, and the fact that the Rooks and Jackdaws have to leave for very different destinations.

In the Vale of Cashmere the majority of eggs are found in May.

The Himalayan Tree-Pie—*Dendrocitta sinensis himalayensis* (Blyth).

This species is as yet only known to occur in any numbers in the extreme north-east of the Punjab in the Himalayas about Simla; from here it has been recorded by several observers. Beavan (Ibis, 1868, 166) states that it is not uncommon about Simla. Tytler (Ibis, 1868) says that it was common in the valleys in June and up to 5,000 ft. Stoliczka (J.A.S.B., xxxvii.) says that it is found in the lower hills from 2,000-5,000 ft. and occasionally up to 7,000 ft. and he procured it at Koteghar in winter. Jones states (Jour. B.N.H.S., xxiv., 602) that it is fairly common at Simla near cultivation with plenty of dense forest in the vicinity. The collection of the Bombay N. H. Society contains from Simla two males obtained in June and July 1886 respectively by Capt. Anderson and a female shot on 30th July 1911 by Mr. P. L. Dodsworth.

I obtained 2 specimens from a family party at Urla, 4,000 feet, Mandi State, on 3rd August 1922.

The Tweeddale collection contains a specimen labelled as obtained at Murree, and this locality is perhaps correctly given (though no recent observer has recorded the bird in this neighbourhood), as Stoliczka says (J.A.S.B., xxxvii., 1868) that it occurs in Southern Kashmir, and Colonel Ward has noted (Jour., B.N.H.S., xvii., p. 109) that a specimen was obtained in the Vale of Kashmir in February 1905.

It is presumably a resident species changing its levels according to season.

According to Jones it lays from the end of May till the middle of June.

The Wandering Tree Pie—*Dendrocitta vagabunda pallida* (Blyth).

The Wandering Tree-Pie is found throughout the whole of the Punjab plain and in the Himalayan foot hills up to about 4,000 ft. It is most abundant in the Central and Eastern Punjab, as about Amballa, Hansi and Jullundur, and becomes somewhat scarce in the semi-desert regions of the south-western Punjab. In the north-western plateau it again becomes scarce except in the hill jungles of the Salt Range and the Kala Chitta. Throughout the Himalayan foothills it is fairly common.

I have not been able to detect the slightest sign of its being any thing but a resident species within our area, but it is worthy of note that Whitehead records (Ibis, 1909) that it is a common winter visitor to Kohat, arriving early in September and leaving about mid April, only a few birds remaining to nest in the Miranzai Valley.

At Lahore according to Currie (Jour., B.N.H.S., xxiv., 561) it breeds from March to June but chiefly in April. About Hansie, Blewitt recorded (N. & E., 2nd ed., I, 20) several nests in the latter half of April, May and the early part of June. I find no other records of its breeding in the Punjab and personally I have never succeeded in taking eggs though I found new nests at Hansi on 5th June and Hissar on 14th June.

The Yellow-billed Blue Magpie—*Urocissa flavirostris cucullata* (Gould).

The type specimen of this race in the Gould collection in the British Museum came from Kulu.

In Simla the Yellow-billed Magpie is very scarce and is replaced by the Red-billed Magpie. Beavan records (Ibis, 1868, 166) a specimen

brought in by his shikari and states it was the only one he ever saw there. Jones (Jour. B. N. H. S.) says that he never observed it closer than Jangi in Mandi State across the Sutlej.

According to Hume it may be found behind Mashobra (S. F., viii., 447) and there he says both species may be found in the same dell. At Koteghar it is apparently not uncommon (Lahore to Yarkand, 243).

I have no information about Rampur-Bashahr, but in Lahul and Spiti it is not found. It is abundant throughout Kulu and Saraj and along the Outer Himalayas generally of the North-Eastern Punjab into Chamba. It then again appears in the North-Western Punjab about Murree where the Outer Himalayas re-enter the province for a short distance.

It is one of the familiar birds of the hill stations of Dalhousie, Murree and the Galis.

This Magpie is very strictly confined to the mountains. Its summer range lies between roughly 5,500 ft. and 9,000 ft. and in winter it moves somewhat lower to a zone between 4,000 and 7,000 ft., few stragglers arriving as low as 3,500 ft. While strictly speaking a bird of heavy forest, Evergreen or Conifer, it moves freely into open cultivation or bare hill-sides.

The breeding season proper is in May and June; Marshall records (N. & E., 2nd ed., I., 16) finding fresh eggs as late as 15th August.

The Red-billed Blue Magpie—*Urocissa erythrorhyncha occipitalis* (Blyth).

This Blue Magpie is a common bird in the Himalayas from the Jumna to Nepal and extends west of the Jumna into the Punjab area as far as the Sutlej River in the Outer Himalayas about Simla. There is but little on record regarding it within the Punjab boundaries.

Jones states (Jour. B. N. H. S., xxvi., 601) that it is common in the lower valleys about Simla frequenting and breeding in the cultivated areas. Hume says (N. & E., 2nd ed., I., 14) that it breeds sparingly about Simla and Koteghar and he also remarks (S. F., viii., 447) that it may be found behind Mashobra. Beavan records (Ibis, 1868, 165) that he obtained a specimen at Simla on 15th June 1866 and Tytler in his account of a march from Simla to Mussoorie in June (Ibis, 1868) says that he found it common at all heights in small flocks.

Stoliczka says that it is common along the Sutlej valley (J. A. S. B., xxxvii.,).

According to Jones it lays three to six eggs in the end of April and May.

The Large Spotted Nutcracker—*Nucifraga multipunctata* (Gould).

The range of this Nutcracker is given in the 1st edition of the Fauna B.I., I., 82 as "Kashmir and the Himalayas to Kumaon. Stoliczka found this species tolerably common in the pine and cedar forests near Kistwar and Budrawar. Biddulph remarks that it is common at all times in Gilgit above 8,000 ft., and there are specimens in the British Museum from various localities from Murree to Kumaon". Hartert (Vog. Pal. Fauna, I., 28) merely gives the range as Kashmir and the western Himalayas to Kumaon at heights over 8,000 ft., whereas he gives the range of *N. e. hemispila* as the Himalayas from the Sutlej Valley to Butan. The Type locality of the latter is given as 'Himalayas' and of the former as? Simla. I have not been able personally to examine the specimens in the British Museum on which this given distribution of *N. multipunctata* is based, but there is a later extension of its range to a southern Tibetan locality (Bailey, Jour. B. N. H. S., xxiv., 75) so there is no apparent reason to doubt the correctness of the statement in the Fauna; under the circumstances as the range of

these two western Nutcrackers over lap there is no option but to treat them as belonging to separate species, and not as two sub-species of *caryocatactes*. I therefore follow Stuart Baker's Hand List in treating *hemispila* as a sub-species of *caryocatactes* and *multipunctata* as a separate species. It should be noted however that Hartert (Add. and Corrig., Vog. Pal. Fauna, 2029) would seem to accept *hemispila* as a separate species with races. Further information as to the distribution of these two Himalayan Nutcrackers is therefore badly needed.

There is no doubt that *N. multipunctata* is in the main resident of an area west of the range of *N. c. hemispila*. It appears to be generally common in those portions of Kashmir which being truly Himalayan in character contain the necessary large pine-forests. Stoliczka (as quoted above) says that it is tolerably common in the pine and cedar forests near Kishtwar and Budrawar and his collection included a specimen from Gaora (Ibis. 1868). He later obtained 3 specimens at Gaganghir on August 9th, 1873 (Second Yarkand Mission Report, 21). Ward (Jour. B.N.H.S., xvii., p. 109) says "Common in the larger forests. Breeds, from May to July from 8,000-10,000 ft." Henderson (Lahore to Yarkand, 239) says "Common in the Valley of Kashmir in October; it was met with at Sanamarg, below Baltal, and as low as Gond". Richmond (Proc. U.S. Nat. Mus., xviii) catalogues 8 adult specimens collected by Dr. Abbott. Three of these were obtained in Western Kashmir at 8,000-9,000 ft., 5-7th July, three in the Now-boog Valley, Eastern Kashmir, 7,000 ft., 16th August; one at 8,000 ft., Pir Punjab range, 30th August; and one at 9,000 ft., Sind Valley, 8th November. Biddulph (S. F. IX., 342) states that it is common at all times above 8,000 ft. in the forests of Gilgit.

In Chitral it appears to be less common. Fulton (Jour. B. N. H. S., xvi., 46) only obtained a single specimen and saw no others. Perreau (Jour., B. N. H. S., xix., p. 902) received a specimen from Utzen at 7,500 ft., and saw two about the same height in the Drosh Nala in June. It is found in the Hazara District. Magrath states (Jour., B. N. H. S., xviii., p. 285), that he heard one about the middle of June at Thandiani; while about Nathia Gali in 1913 I found it common and much in evidence both in July and September.

Further west again we have Whitehead's evidence (Ibis., 1909, 106) that it occurs sparingly amongst the conifers of the Sufed Koh.

All the above records refer to areas outside the Punjab boundary though it is clear from a consideration of them that the bird may be expected to occur in winter at least in the Murree Hills. The species however finds a place in our list in virtue of Stoliczka's record (J. A. S. B., xxxii.) that he obtained a specimen on an elevated point beyond Bilaspur in October 1865.*

The Himalayan Nutcracker—*Nucifraga caryocatactes hemispila* (Vig.)

The Himalayan Nutcracker is a common bird throughout the Pine forests which lie to the north of Simla at elevations from 6,000 to 9,000 feet. In particular Mahasoo, Fagoo, Baghi, Narkundah, and Koteghar may be quoted as favourite localities for this bird. The exact limits of its range are uncertain but according to Stoliczka (J. A. S. B., xxxvii.) it is common throughout the Sutlej Valley up to the limit of trees as far as Chini. It is a permanent resident but in winter it tends to move a little lower in altitude, like most Himalayan species, and to approach closer to Simla

* Since the above account was written I have received a specimen from the Thakur of Lahul obtained in the Chandra Bhaga Valley, lower Lahur, where a few pairs are said to occur.

where it is not usually found. I have there observed it common at Kufri as early as November 9th, and Beavan long ago recorded (Ibis, 1868, 166) that he once saw a pair in the gardens at Annandale. Though he gives no date for this record it was doubtless in winter as he goes on to observe "They probably visit the woods there during the winter months when driven down by heavy snow."

Further north it is found in Kulu. The collection of the Bombay N. H. Society contains specimens obtained by General Osborn at Naggar (♂ 1-10-1903; ♂ 8-9-1903; ♀ 1-10-1903), and my own collection contains a bird which I shot from a party at about 8,000 feet on the northern slope of the Bhubu Pass on 7th July 1910. In July of this last year (1921) I heard the call of this species about the same locality. Hume has also recorded (N. & E., 2nd ed., 1-30) that his people found young below the Jelaury Pass in April. It apparently does not occur in Lahul or Spiti.

To the west again its range is uncertain. It is not uncommon at Dalhousie where A. H. Marshall, Indian Police, informs me that he shot a specimen on 21st August 1917. I saw one individual there on the Upper Bakrota Mall 7,000 feet on 2nd September 1915. Mr. N. B. Kinnear informs me that he also met with it in Dalhousie in October 1917 and he remarks that in his opinion it is probably commoner than is generally supposed.

At Dharmasala however it has not yet been recorded. It is not in Hingston's list (Jour. B.N.H.S., xxvii, p. 555) and up to the present I have failed to meet with it there or anywhere along the southern slope of the Duala Dar or first snowy range from the Chamba border above Shahpur east to Jhatangi.

Very little is accurately known about the breeding season. Jones obtained a nest with two young about five days old, and an addled egg on 10th March 1917 at 7,500 feet near Simla (Jour. B.N.H.S., xxvi, 602). Hume obtained nearly full-fledged young near Fagoo early in May (N. & E., 2nd ed., 1-30) and records his opinion that they must lay in March or early in April.

The Black-throated Jay—*Laletris lanceolatus* (Vig.).

The Black-throated Jay is a very abundant and familiar species on the southern slope of the Outer Himalayas in the north-east of the Province from Dalhousie and Bakloh to Simla and the boundary of the Punjab. Here it breeds from about 5,000 to 8,000 feet, and while some individuals remain at this altitude during the winter months the majority appear to collect into flocks and move down to the zone between 3,500 and 5,000 feet in the months of January and February.

It certainly occurs north of this outer or first snowy range as I met with single examples in Kulu on the 18th June at Jagat Sukh (6,000 feet) and on the 29th June at Larji on the Beas (3,500 feet), but there appears to be no information on record as to its range or degree of abundance in this area. It does not occur in Lahul, or in Spiti. Stoliczka says that it is more confined to the lower ranges close to Simla and does not extend far into the interior although common at Koteghar in winter.

In the north-west of the Province it again appears with the Himalayan ranges about Murree and the Galis and there too it is abundant from 5,000 to 8,000 feet. It presumably moves down in winter here, as in the eastern area, but records are silent on this point.

It is of interest to note that the species is found in some portion at least, of the Suleman hills west of our area, as Whitehead records (Ibis, 1909, 105) that it is a resident from about 5,000 to 8,000 feet on the Samana and in the Kurram Valley. a few birds occasionally reaching the plains of

Kohat. It has not however yet been obtained in any portion of the Punjab plains and is not to be expected there even as a straggler, as in winter none appear to reach even the foot-hills proper.

The breeding season extends from the middle of April to the end of June.

The Himalayan Jay—*Garrulus glandarius bispecularis* (Vig.).

This Himalayan race of the common European Jay appears to have much the same distribution in the Punjab Province as *Laletris lanceolatus* along the Outer Himalayan range. Stoliczka however (J. A. S. B., xxxvii.) says that in the Sutlej Valley it occurs much further north and more into the interior of the hills, being occasionally seen about Chini. I find no record of the species from Chamba, Kulu, Lahul, or Spiti. Throughout its range it is however markedly less numerous than the Black-throated Jay. It appears to be found at the same elevations as that bird, and to be subject to the same seasonal movements, both species indeed being often found in company during the winter months.

The breeding season extends from March till June, the majority of eggs being found in April.

The Red-billed Chough—*Pyrrhocorax pyrrhocorax* (L.).

In spite of Jerdon's statement that the Chough visits the plains of the Punjab in winter in company with the Jackdaws it may be safely said that the species is only found in the mountains of the north-east corner of our area.

Its main stronghold is of course on the extreme border of Punjab territory. In Lahul in May and June I found it common though less abundant than the Alpine Chough, throughout the Chandra and Bhaga Valleys from the Rohtang Pass up to near Patseo. It was most common in the Valley of the Chandra near Khoksar and was scarce beyond Kyelang. It did not venture apparently much above 13,000 ft. but kept to the valleys from 10,000-12,000 ft. They were then in pairs and some of these appeared to have young in the cliffs. In Spiti, according to Stoliczka (J. A. S. B., xxxvii.), it is also common and generally observed in summer from 13,000-15,000 ft. It also breeds in some portions of Kulu for, on my way into Lahul, I found it fairly common from the Beas tunnel at 8,000 ft. below Kothi, right up to the top of the Rohtang Pass. The birds were then in pairs feeding about the Alpine pastures and some were certainly breeding both in the Beas tunnel and in the cliffs above the road at Rahla Rest House. In the latter spot I actually saw a nest in the face of the cliff but in spite of my utmost endeavours the site proved quite inaccessible. Mr. H. Branford of Mirzapur informed me that he saw a few Choughs over the snow in the Malasu Nullah on 8th June 1919. Beavan records, on the authority of Col. Gott (Ibis, 1867, 137), that it occurs about the Jalaury Pass.

It apparently also breeds in Bashahr, for Stoliczka says that it "is rare in summer in the neighbourhood of Chini and only on elevations of and above 11,000 ft.; it is however more common in these parts during the cold weather." Von Pilzclu comments on a female obtained by Stoliczka at Rogi (Ibis, 1868).

I suspect that during winter the Chough must descend right into the Kulu Valley but there is no record on the point.

The Chough is also found on the Duala Dar or first snowy range from Dharmsala to Palampur. Of Dharmsala, Hingston writes: "A common and noisy resident of the snow line. Keeps almost exclusively to the Alpine

pastures. Moves slightly up and down the slope in accordance with the change of season. In winter may descend as low as 8,000 ft., in summer ascends as high as 14,000 or 15,000 ft." (Jour. B. N. H. S., xxvii., 555). My observations about the same locality confirm the above account except that on occasions in winter the flocks move down as low as 6,000 ft., and in January and February of this year (1922), occasional parties would fly over my garden at Lower Dharmsala (which is situated at 4,000 ft.) at a great height but coming from the south as if they had been down in the Kangra Valley. During one absence of mine from the station in the second half of February, according to an orderly who volunteered the statement, they actually visited my garden.

The eggs do not appear to have been taken yet in British Territory. In Ladakh, Ludlow took a clutch of 3 incubated eggs at 13,000 ft. on 14th May and found young still in the nest in Leh on 13th June.

The Alpine Chough—*Pyrrhocorax graculus* (L.).

Like the last species the Alpine Chough is only found in the Punjab in the mountainous area of the north-east.

The main stronghold of this species is Lahul where it is one of the commonest and most distinctive birds in summer, being found throughout the country from 10,000 feet at river level up to about 13,000 feet. It is there much more abundant than the Red-billed species, and is indeed compared by Stoliczka to the House Crow of the plains for its noisy boldness in the vicinity of human haunts. In Spiti it appears to be equally common according to Stoliczka's account and he states (J. A. S. B., xxxvii.) that it moves lower down in winter and is then especially common in Kulu. It does not appear to be found in Kulu in summer.

The only other locality in our area for which there is a record is the Duala Dar range behind Dharmsala. Here according to Hingston (Jour. B. N. H. S., xxvii., 555) it is "resident on the snow line. Less common than the Red-billed species. Both these Choughs haunt the same elevation, move up and down the slope within the same altitudinal limits (i.e., down to 8,000 ft. in winter : in summer up to 14,000-15,000 feet) and intermingle in a common flock." I have however failed to meet with the Alpine Chough in this locality myself.

The eggs do not appear to have been found as yet in British limits. From my observations on the species in Lahul I would presume that the majority lay there in May and June. I left that country on 15th June and by then had seen no young bird on the wing although young in the nest were certainly heard in a cliff beyond Kyelang. The organs of six birds skinned were in different stages of enlargement but some were in breeding condition.
